

CLAIMS

1. A simple device description message signal (230), including the
5 following data:
 a device type (232);
 a field (238) indicating if the sending device has an extended device
description available; and
 a defined number of additional fields (236) identifying a defined number
10 of additional status settings.
 wherein the device type (232) is selected from a device type hierarchy
having predetermined top level elements including a controller device type and
a basic device type, and at least one further level of subsidiary device types
depending from the basic device type and inheriting properties of higher level
15 device types on which the subsidiary device type depends, but not including
any further level of subsidiary device types depending from the controller
device type.
2. A simple device description message according to claim 1 in
20 token-compressed XML
3. A method of operation of a networked device, including:
 transmitting or receiving (104) a simple device description message
(230) of defined length, the simple device description message being in the
25 form of a token-compressed message compressed from a human-readable
message format, the message including a device type value representing the
type of the other device; the device type value being selected from a device
type hierarchy having predetermined top level elements including a controller
device type (52) and a basic device type (54), and at least one further level
30 (68) of subsidiary device types depending from the basic device type (54) and
inheriting properties of higher level device types on which the subsidiary

device type depends, but not including any further level of subsidiary device types depending from the controller device type (52).

4. A method according to claim 3 further including the steps of:
5 establishing (102) the address of at least one other device;
sending (104) a simple device description query message to the other device or one or more of the other devices requesting a simple device description;
receiving (106) from the other device or devices the simple device
10 description message.

5. A method according to claim 3 further comprising
sending (108) an extended device description query message to the other device or one of the other devices requesting an extended device
15 description from the other devices; and
receiving (110) from the other device or the one of the other devices an extended device description of variable length.

6. A method according to claim 3 wherein the networked device is a
20 controller device (2) having a list (24) of device types that the controller can control.

7. A method according to claim 6 further including:
determining the extent to which the controller can control the other
25 device by determining the lowest level of device type that either is the device type of the other device or is a higher level device type from which the device type of the other device depends, in the list of device types that can be controlled by the controller.

30 8. A method according to claim 7 further including:

receiving (120) a controller query message from another device including an requested device type value to request whether the controller is able to control a device of the requested device type; and

5 responding (122) with a controller response message including a device type value representing the lowest level of device type in the list of device types that either is the requested device type or is a higher level device type from which the requested device type depends.

9. A method according to claim 3, comprising:

10 receiving a simple device description query message from another device requesting a simple device description; and

transmitting to the other device the simple device description message (230) of fixed length.

15 10. A method according to claim 9 wherein the predetermined top level elements in the device type hierarchy further include a composite device type, and the networked device is of the composite device type having the functionality of an integer number of other devices, the method further comprising:

20 responding to a received simple device description query message by sending a simple device description message (230) including the device type value (232) representing the device as a composite device and further an integer sub-device number being the number (234) of other devices.

25 11. A system, comprising

a plurality of networked devices (200) each having a transceiver (8) for sending and receiving network messages, the networked messages including device description messages identifying the device type of a networked device; wherein

30 each networked device has a predetermined device type selected from a device type hierarchy having predetermined top level elements including a controller device type (52) and a basic device type (54), and at least one

further level (68) of subsidiary device types depending from the basic device type and inheriting properties of higher level device types on which the subsidiary device type depends, but not including any further level of subsidiary device types depending from the controller device type;

5 at least one of the networked devices is a controller device (2) with the controller device type (52); and

 at least one of the networked devices is a controlled device (4) with a device type of the basic device type (54) or a device type (62,64,66,) depending from the basic device type (54).

10

12. A system according to claim 11, wherein the plurality of networked devices include at least one simple device without the capability to decompress messages and interpreting directly compressed simple device description query messages and at least one complex device including a message decompression arrangement (184) for decompressing the messages and a message interpreter for interpreting the decompressed messages.

15

13. A system according to claim 11 or 12 wherein the predetermined top level elements further include a composite device type;

20

the system includes at least one networked device of the composite device type having the functionality of a predetermined number of other devices, the predetermined number being an integer greater than or equal to 2; and

each of the at least one networked device of the composite device type responds to an incoming device query message requiring a simple device description by sending a simple device description (230) including the device type (232) as a composite device and a sub-device number (234) representing the predetermined number of other devices.

25

30

14. A networked device, including:
a transceiver (8) for sending and receiving messages; and:

a message handler (26, 182) arranged to send or receive simple device description message of defined length, the simple device description message being in the form of a token-compressed message compressed from a human-readable message format, the message including a device type value
5 representing the type of the other device; the device type value being selected from a device type hierarchy having predetermined top level elements including a controller device type (52) and a basic device type (54), and at least one further level (68) of subsidiary device types depending from the basic device type (54) and inheriting properties of higher level device types on which
10 the subsidiary device type depends, but not including any further level of subsidiary device types depending from the controller device type (52).

15 15. A networked device according to claim 14,
 wherein the message handler is arranged to carry out the steps of:
 establishing (102) the address of at least one other device;
 sending (104) a simple device description query message to another device requesting a simple device description;
 receiving (106) from the other device the simple device description message of fixed length including a device type value representing the type of
20 the other device and a field indicating whether an extended device description is available;
 and further arranged to optionally carry out the steps of:
 testing the simple device description message to determine whether an extended device description is available;
25 sending (108) an extended device description query message to the other device requesting an extended device description from the other device;
 and
 receiving (110) from the other device an extended device description of variable length.

30

16. A networked device according to claim 14 wherein the message handler (26, 182) is arranged to carry out the steps of:

receiving a simple device description query message from another device requesting a simple device description; and

5 sending to the other device the simple device description message of fixed length, the simple device description message being in the form of a token-compressed message compressed from a human-readable message format.

17. A networked device according to claim 16 further comprising a memory (14) storing a predetermined simple device description message
10 precompressed from human readable format, wherein the message handler is arranged to read the predetermined simple device description message from the memory and send it through the transceiver in response to an incoming device query message.

15 18. A networked device according to claim 17 wherein the networked device is a controller device (2) comprising a memory (14) containing a list of device types that can be controlled by the controller for determining the extent to which the networked device can control another device of known device type by determining the lowest level device type in the list of device types that
20 can be controlled by the networked device that either is the known device type or is a higher level device type from which the known device type depends.

19. A networked device according to claim 18 wherein the message handler is arranged to receive a controller query message from another device
25 including an requested device type value to request whether the controller is able to control a device of the requested device type; and to respond with a controller response message including a device type value representing the lowest level of device type in the list of device types that either is the requested device type or is a higher level device type from which the requested device
30 type depends.

20. A computer program defining a device type hierarchy having predetermined top level elements including a controller device type (52) and a basic device type (54), and at least one further level (68) of subsidiary device types depending from the basic device type (54) and inheriting properties of higher level device types on which the subsidiary device type depends, but not including any further level of subsidiary device types depending from the controller device type (52), the computer program being arranged to cause a networked device (2,4) to send and/or receive simple device description messages (230) including the device type selected from the device type hierarchy.

21. A computer program according to claim 20 for controlling a controller-type networked device, the networked device having a transport stack and an application, the computer program comprising:

- code implementing a transport adaption layer (180) for interfacing with the transport stack;
- code implementing an application programming interface (186) for interfacing with the application; and
- code implementing a messaging layer (182) including the capabilities of sending and receiving messages in a token-encoded human readable messaging format, the code being arranged to cause the networked device:
 - to recognise incoming device query messages requiring a simple device description response and to provide a simple device description response including a device type of controller device type;
 - to respond to an incoming controller query message querying whether the networked device can control a predetermined device type by responding with the lowest level of device type in the list of device types that can be controlled by the networked device that either is the predetermined device type or is a higher level device type from which the predetermined device type depends; and
 - to carry out the steps of:
 - sending a device query message to another device;

receiving a response from the other device indicating the device type of the other device, the device type being selected from a device type hierarchy having predetermined top level elements including a controller device type and a basic device type, and at least one further level of subsidiary device types depending from the basic device type and inheriting properties of higher level device types on which the subsidiary device type depends, but not including any further level of subsidiary device types depending from the controller device type;

determining the extent to which the networked device can control the other device by determining the lowest level of device type that either is the device type of the other device or is a higher level device type from which the device type of the other device depends, in the list of device types that can be controlled by the networked device; and

controlling the other device with the functionality of the determined lowest level of device type by sending control signals selected from a list of control signals appertaining to the determined lowest level of device type.

22. A computer program arranged to cause a networked device to carry out the method of any of claims 3 to 10.